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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/684,401	10/10/2000	Timothy R. Miller	195272US-8	4464

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Arlington, VA 22202

EXAMINER

BURD, KEVIN MICHAEL

ART UNIT	PAPER NUMBER
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2631

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DATE MAILED: 10/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/684,401

Applicant(s)

MILLER, TIMOTHY R.

Examiner

Kevin M Burd

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-88 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-88 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/10/2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Information Disclosure Statement

1. The information disclosure statement filed 11/6/2000 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because a list of pending applications is provided. No copy of these applications is provided. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).
2. The information disclosure statements (IDS) submitted on 2/27/2003 are being considered by the examiner.

Specification

3. The abstract of the disclosure is objected to because line 17 should be deleted. Correction is required. See MPEP § 608.01(b).
4. The disclosure is objected to because of the following informalities: the first page of the specifications lacks serial numbers and application dates for the co-pending applications. This information must be included or the citation removed from the

paragraph. Page 20, lines 26-29, page 31, lines 28-29 and page 21, lines 25-29 are also objected to.

Appropriate correction is required.

Claim Objections

5. Claims 11, 30, 54 and 82 are objected to because of the following informalities: claim 11, should recite "wherein said amplified incoming UWB signal is being used as said incoming signal...". Claims 19 and 63 are objected to because the variables "L", "m", "K" and "s" are undefined in the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-6, 12-17, 20-25, 31-49, 55-61, 64-77 and 83-88 are rejected under 35 U.S.C. 102(e) as being anticipated by Grabb et al (US 6,437,832).

Regarding claims 1, 20 and 36, Grabb discloses an ultra wide band (UWB) communication system (column 4, line 66 to column 5, line 17). Figure 1 shows a receiver 107 for receiving an incoming UWB signal. The receiver generates a receiver

signal at the UWB receiver 107. The receiver signal is analyzed in element 108. The signal is compared to a wideband overlay sequence from the wideband overlay sequence generator 109. Element 108 outputs a signal to the phase adjuster 110 and adjusts the phase to maximize the largest peak of the cross-correlator (column 5, lines 2-17).

Regarding claims 2 and 21, the analysis result is an output from cross correlator 108.

Regarding claims 3 and 22, the phase is adjusted to maximize the largest peak of the signal from the cross-correlator (column 5, lines 5-9).

Regarding claims 4 and 23, the peak that is correlated will have an inherent signal-to noise value associated with it.

Regarding claims 5 and 24, the peak that is correlated will have an inherent bit error rate associated with it.

Regarding claims 6 and 25, when the peak correlation is maximized, no phase adjustment will take place. Therefore, a threshold is met.

Regarding claims 12 and 31, the incoming UWB is a bi-phase signal (column 4, lines 30-45).

Regarding claims 13 and 32, the incoming signal comprises two levels (column 4, lines 30-45).

Regarding claims 14 and 33, the threshold is the point where the peak of the correlation is maximized. It will change to ensure the peak is maximized.

Regarding claim 15, the process will be repeated as each signal is received.

Regarding claim 16, the threshold is the point where the peak of the correlation is maximized. It will change to ensure the peak is maximized.

Regarding claim 17, the process will be repeated as each signal is received.

Regarding claim 34, a phase adjuster adjusts the phase of the signal to maintain a maximum correlation as shown in figure 1.

Regarding claim 35, element 108 outputs a signal to the phase adjuster 110 and adjusts the phase to maximize the largest peak of the cross-correlator (column 5, lines 2-17). This is the same as matching phase angles. This phase of the signal is measured over one time period as shown in figure 6. the time period represents 360 degrees.

Regarding claims 37, 65 and 88, Grabb discloses an ultra wide band (UWB) communication system (column 4, line 66 to column 5, line 17). Figure 1 shows a receiver 107 for receiving an incoming UWB signal. The receiver generates a receiver signal at the UWB receiver 107. The receiver signal is analyzed in element 108. The signal is compared to a wideband overlay sequence from the wideband overlay sequence generator 109. Element 108 outputs a signal to the phase adjuster 110 and adjusts the phase to maximize the largest peak of the cross-correlator (column 5, lines 2-17). This is the same as matching phase angles. This phase of the signal is measured over one time period as shown in figure 6. the time period represents 360 degrees.

Regarding claims 38 and 66, the analysis result is an output from cross correlator 108.

Regarding claims 39-43, 67-71 and 85, the phase range can be shortened by an amount. However, the process will have to be repeated until the entire period has been monitored for maximum peak values.

Regarding claims 44, 45, 61, 72, 73 and 86, element 108 outputs a signal to the phase adjuster 110 and adjusts the phase to maximize the largest peak of the cross-correlator (column 5, lines 2-17). This is the same as matching phase angles.

Regarding claims 46 and 74, the analysis result is an output from cross correlator 108.

Regarding claims 47 and 75, the peak that is correlated will have an inherent bit error rate associated with it.

Regarding claims 48, 64 and 76, the peak that is correlated will have an inherent signal-to noise value associated with it.

Regarding claims 49 and 77, when the peak correlation is maximized, no phase adjustment will take place. Therefore, a threshold is met.

Regarding claims 55 and 83, the incoming UWB is a bi-phase signal (column 4, lines 30-45).

Regarding claims 56 and 84, the incoming signal comprises two levels (column 4, lines 30-45).

Regarding claims 57 and 87, the threshold is the point where the peak of the correlation is maximized. It will change to ensure the peak is maximized.

Regarding claim 58, the process will be repeated as each signal is received.

Regarding claim 59, the threshold is the point where the peak of the correlation is maximized. It will change to ensure the peak is maximized.

Regarding claim 60, the process will be repeated as each signal is received.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7-11, 26-30, 50-54 and 78-82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grabb et al (US 6,437,832) in view of Fontana et al (US 6,239,741).

Regarding claims 7, 26, 50 and 78, Grabb discloses the communication apparatus and method stated above in paragraph 6. Grabb does not disclose amplifying the received signal to produce an amplified received signal. Fontana discloses amplifying the received signal to produce an amplified received signal. By amplifying the received signal, the UWB pulses are amplified to levels suitable for use by the high sensitivity pulse detector circuitry downstream of the receiver (column 3, lines 15-18). It would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the amplifying components and the method of amplifying disclosed by Fontana in the receiver of Grabb for the reason stated above.

Regarding claims 8, 11, 27, 30, 51 54, 79 and 82, the correlation step will determine the maximum peak of the correlation signal with the amplified signal as an input.

Regarding claims 9, 10, 28, 29, 52, 53 , 80 and 81, the noise and bit error rate will not change once the signal has been amplified.

8. Claims 18, 19, 62 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grabb et al (US 6,437,832) in view of Rizzo et al (US 5,841,808).

Regarding claims 18 and 62, Grabb discloses the communication apparatus and method stated above in paragraph 6. Grabb does not disclose determining a lock parameter indicative of an average noise value. Rizzo discloses calculating an average noise value of the environment from a threshold detector and determining if the incoming signal is properly phased (column 5, lines (16-20). This is done in correlation circuitry to make sure the correlation is locked to the correct value (column 5, lines 5-10). It would have been obvious for one of ordinary skill in the art at the time of the invention to use the average noise detector to ensure the correlation is locked properly to the correct value. Otherwise, false locks can occur and incorrect data will be processed.

Regarding claim 19 and 63, Rizzo discloses calculating an average noise value of the environment from a threshold detector and determining if the incoming signal is properly phased (column 5, lines (16-20). This is done in correlation circuitry to make

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sure the correlation is locked to the correct value (column 5, lines 5-10). In this instant, "L" equals a lock parameter indicative of average noise.

Contact Information

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231


or faxed to:

(703) 872-9314, (for formal communications intended for entry or for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Burd, whose telephone number is (703) 308-7034. The Examiner can normally be reached on Monday-Thursday from 9:00 AM - 6:00 PM.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3800.


Kevin M. Burd
PATENT EXAMINER
10/26/03